October 2015

Nurses' Knowledge and Attitudes toward Implementation of Electronic Medical Records

Cathy H. Abell

Tonya Bragg-Underwood
Western Kentucky University

Lori Alexander
Western Kentucky University

Caitlyn Elizabeth Abell
Iowa State University

Vanessa Burd
Caverna Memorial Hospital

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Granger Westberg played a key role in the conceptualization of parish nursing in the 1970s and piloted the parish nurse role in the 1980s (Church Health Center, 2014). The name has changed to Faith Community Nursing and much growth has occurred in the role of the faith community nurse. One key practice of the faith community nurse that cannot be overlooked is documentation (Church Health Center, p. 2014). Documentation is important for many reasons including quality of care for the patient, protection of the care provider, assessing outcomes of care, quality improvement, and supporting the value of Faith Community Nursing (FCN) program . The value of documentation is noted throughout the *Faith Community Nursing: Scope and Standards of Practice* giving a foundation for the understanding of the value of documentation. Standards for assessment, diagnoses, outcome identification, planning, implementation, evaluation, quality of practice, and collaboration include competencies related to documentation (American Nurses Association, 2012). However; a study conducted by Mattingly and Main (2015) indicated that almost 1/3 of FCNs surveyed did not document as part of their practice. When a faith community nursing program is initiated, selection of a documentation system must be part of the discussion; this could include an electronic documentation system.

The Institute of Medicine reported in the well-known document, *To Err is Human,* that from 44,000 to 98,000 Americans die each year due to medical errors; this number could even be greater (Kohn, Corrigan, & Donaldson, 2000). An innovation that has been implemented by various health care providers to decrease the number of errors is the use of electronic medical records (EMRs).

Nurses play a vital role in the planning and implementation of EMRs and their individual computer expertise and/or attitude and knowledge of EMRs could be important in the successful implementation. This study was conducted in an acute care setting, but the findings have implications for FCNs as documentation systems are examined and implemented.

Purpose Statement

The purpose of this research study was to examine nurses' knowledge and attitudes regarding EMRs. Also, relationships between knowledge and attitudes of individuals and demographic variables such as age, educational preparation, and position within the organization were assessed.

General Methodology

Permission was obtained from the institutional review board at Western Kentucky University (WKU). A convenience sample of nurses employed at a critical access acute care facility was utilized for the study. The informed consent was read to nurses attending staff meetings on three different occasions. Following this, those that agreed to participate in the research study were given the survey to complete. Completion of the survey was interpreted as implied consent. The initial data collection was four weeks following the implementation of EMRs. A second data collection occurred seven weeks later and a third data collection occurred twenty weeks after the initial collection of data.

Researchers combined surveys from the three data collections. Of the 29 total surveys, twenty-one (72%) were completed surveys which could be utilized for data analysis. The subjects were asked to develop an individualized reference code which they would place on the surveys. The code was only identifiable by the subject and was used to match initial and subsequent surveys. Consistency in subjects was not present at initial and subsequent data

collections; therefore, each survey was treated as a single subject. From the completed surveys utilized for data analysis, there were four LPNs, 17 RNs (13 with ADNs and 4 with BSNs). Of the 21subjects, there were 18 floor nurses, one charge nurse, and two nursing administrators.

After obtaining permission, researchers utilized a modified version of the EMR questionnaire designed by Beiter and colleagues (Beiter, Sorscher, Henderson, & Talen, 2008). The modified questionnaire consisted of 13 items that included four demographic questions. The non-demographic items examined the individual's knowledge of EMRs, skill with computers, and attitude toward EMRs (Beiter et al., 2008).

Data were entered into SPSS and cleaned by double-checking all entries. Linear regression analysis was conducted. All questions were treated separately as dependent variables using the same model. Age was fitted as a co-variable and fixed effects included education, position, and date of survey.

Findings

Knowledge of EMRs was examined with two questions that asked subjects to rate their level of experience and knowledge of capabilities regarding EMRs using the rating scale of 1 = no experience, 2 = little experience, 3 = some experience, 4 = good amount, 5 = very experienced. The mean for the question regarding experience with the first data collection was 2.5; 3.57 at the second data collection, and 3.87 at the third data collection date. Response means for the question about knowledge of medical records were 2.83, 3.86, and 3.75 consecutively for first, second, and third data collections. A statistical significance was noted regarding the level of experience and age ($p = .013$). Findings indicated as age increased the level of experience decreased. No statistical significance was noted with fixed variables of position, education, or date of survey.

When asked to rate their computer skills using the scale of 1 = beginner, 2= below average, 3 = average, 4 = experienced, and 5 = expert, mean ratings were 3.33 at first data collection, 3.42 at the second collection, and 3.38 at the third. A statistical significance was noted in regards to education (p =.032). No difference was noted between the computer skills of RNs with ADN and RNs with BSN, but LPNs rated themselves as having higher computer skills than RNs. Also, a statistical significance was noted when examining computer skills in regards to age (p = .001). As age increased, self-rating of computer skills decreased. When examining frequency of use of computers, no statistically significant difference was noted, but a tendency was noted regarding education with LPNs reporting using computers less than RNs.

In addition to knowledge and computer skills, researchers were interested in attitudes toward electronic medical records. One question used to examine the concept of attitudes toward EMRs had two parts including thoughts regarding EMRs saving nurses time and reducing cost. A 5-point Likert-like scale was used (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

No statistical significance was noted regarding thoughts on saving time and reducing cost and other variables. However, a tendency was noted between educational preparation and subject's response to the question about thoughts on EMRs reducing cost with LPNs believing the EMRs reduced cost more than the RNs holding a BSN. Also, younger subjects had a tendency to report a more favorable response in regards to the effect of EMRs on cost reduction.

The second question posed to examine attitudes had six parts, asking subjects to use a 5-point Likert-like scale (1= very negative, 2= negative, 3= neutral, 4= positive, and 5 = very positive) to rate the effect of EMRs on health maintenance/preventative care, accuracy of patient records, nurse-patient relationships, privacy, medical errors, and neatness. Statistical significance

was only noted regarding the effect of EMRs on nurse-patient relationship with regards to education ($p < .02$). Licensed practical nurses, more than RNs, indicated believing that EMRs have a positive effect on nurse-patient relationships.

Subjects were asked to rate their attitudes of EMRs over paper medical records. A statistical significant difference was noted. Associate degree prepared nurses preferred paper medical records more than BSN prepared registered nurses ($p < .029$) Also, a statistical significant difference was noted when examining age in relation to this preference ($p < .001$). As age increased, preference was for paper medical records. A tendency was noted for BSN prepared nurses to have a more positive response regarding the usefulness of EMRs than AD prepared nurses. Also, a tendency was noted for the response regarding usefulness to be more positive in younger respondents.

Researchers were unable to assess if knowledge and attitudes changed over time due to the sample size and the fact that not all subjects at each data collection remained consistent.

Discussion

Findings indicated as subjects' age increased, less experience with EMRs and computer skills were reported. As implementation of EMRs occurs in any health care setting, plans for more preparation time might be needed for certain groups of employees. Additionally, findings support the need for providing information of the potential positive effects EMR implementation.

No statistical significance was noted in regards to difference of position held by subjects and perceptions of EMRs. However; this could be explained by educational levels where a statistical significance was noted as in many situations those in higher positions within an organization have more advanced degrees.

Limitations

Generalizations of the findings are limited due to the small convenience sample. Additionally, all subjects were from the same organization and were primarily RNs with associate degree academic preparation. Other limitations included the inconsistency of subjects present at all three data collection times.

Recommendations

Recommendations for further research include utilizing a larger more heterogeneous sample and conducting research in different health care practice agencies, including FCN settings. It would also be of interest to look at other disciplines and possibly compare attitudes and knowledge of EMRs between different disciplines. Additional quantitative research regarding barriers is needed. Also, it would be beneficial to conduct qualitative research regarding attitudes regarding implementation of EMRs.

Findings from this study also support the need for more education on EMRs. Exploring the prevalence of EMR education in nursing curriculum would offer more insight on this topic. Also, organizations should recognize this need and provide initial and ongoing education.

Conclusion

The use of EMRs is growing. Nurses' knowledge and attitudes of EMRs can be key to the successful implementation. It must also be recognized that certain individuals may need more training and education regarding the use of EMRs.

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